REMARKS

The Office Action mailed November 16, 2005 has been received and reviewed. Claims 1–6 are pending in the present application. All claims stand rejected. Applicants have amended claims 1, 3 and 6 as previously set forth. Reconsideration of the application in view of the above amendments and the following remarks is respectfully requested.

35 U.S.C. § 102 Rejections

A.) Applicable Authority

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdeggal Brothers v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 2 USPQ 2d 1913, 1920 (Fed. Cir. 1989). *See also*, MPEP § 2131.

B.) Anticipation Rejections Based on the Sugi reference (Sugi et al., *The American Journal of Gastroenterology*, Vol. 91, No. 5, pp. 927–934, 1996)

Claim 6 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Sugi et al., *The American Journal of Gastroenterology*, Vol. 91, No. 5, pp. 927–934, 1996 (hereinafter the "Sugi reference"). As the Sugi reference fails to describe, either expressly or inherently, each and every element as set forth in the rejected claim, Applicants respectfully traverse this rejection, as hereinafter set forth.

Independent claim 6, recites a method for monitoring a patient having inflammatory bowel disease. The method of claim 6 comprises obtaining a first fecal sample from the inflammatory bowel disease patient at a first time, determining the concentration of

endogenous lactoferrin in the first fecal sample to obtain a first lactoferrin concentration, obtaining a second fecal sample from the inflammatory bowel disease patient at a second time after treatment of the patient's inflammatory bowel disease later than the first time, determining the concentration of endogenous lactoferrin in the second sample to obtain a second lactoferrin concentration, and comparing the first lactoferrin concentration to the second lactoferrin concentration to monitor the inflammatory bowel disease activity of the patient and determine whether treatment of the inflammatory bowel disease has been effective in decreasing or eliminating gastrointestinal inflammation.

By way of contrast, the Sugi reference discloses a method for utilizing fecal lactoferrin as a marker for disease activity in a person having inflammatory bowel disease wherein multiple readings of lactoferrin levels (at 0, 12, 24, 48, 72, and 96 hours after storage at various temperatures) are taken in a single specimen over time as an assessment of protein stability. *See, Sugi reference*, p. 928, col. 2 and FIG. 2. The Sugi reference, however, does not describe, either expressly or inherently, a method for monitoring a patient having inflammatory bowel disease which includes obtaining a first fecal sample from a patient at a first time and obtaining a second fecal sample after treatment of the patient's inflammatory bowel disease at a second time later from the same patient than the first time, determining the concentration of the first sample and the second sample and comparing the first lactoferrin concentration to the second lactoferrin concentration to monitor the inflammatory bowel disease activity of the patient and determine whether treatment of the inflammatory bowel disease has been effective in decreasing or eliminating gastrointestinal inflammation as recited in the method of independent claim 6. The method taught by Sugi includes taking multiple samples from the same subject. However, these samples are viewed independently and are not compared to each other to

determine whether treatment of the inflammatory bowel disease has been effective in decreasing or eliminating gastrointestinal inflammation. Sugi clearly states "[t]hirteen of 41 UC patients and 16 of 34 CD patients were hospitalized two or more times, and **each admission was treated as an independent clinical course.**" Sugi, page 928 last line of column 1. The Sugi reference lacks any description, express or inherent, of comparing the lactoferrin concentration of a first and second sample taken from the same patient at different times in order to monitor the inflammatory bowel disease activity of the patient and determine whether treatment of the inflammatory bowel disease has been effective in decreasing or eliminating gastrointestinal inflammation.

As such, it is respectfully submitted that the Sugi reference fails to describe, either expressly or inherently, each and every element of independent claim 6. Accordingly, claim 6 is not anticipated by the Sugi reference and withdrawal of the 35 U.S.C. §102(b) rejection of this claim is requested.

35 U.S.C. § 103(a) Obviousness Rejections

A.) Applicable Authority

The basic requirements of a *prima facie* case of obviousness are summarized in MPEP §2143 through §2143.03. In order "[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success [in combining the references]. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both

be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." MPEP § 2143. Further, in establishing a *prima facie* case of obviousness, the initial burden is placed on the Examiner. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985)." *Id. See also* MPEP §706.02(j) and §2142.

B.) Obviousness Rejection Based on the Uchida et al. reference (U.S. Patent 5,552,292)

Claims 1–3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the U.S. Patent 5,552,992 to Uchida et al. (hereinafter the "Uchida reference") in view of Boy Hoeyer Dansk Kemi, 1994, 75(5), pages 26-28, Abstract Only (hereinafter the "Boy Hoeyer reference"). As neither the Uchida reference or Boy Hoeyer reference teach or suggest all the limitations of the rejected claims, Applicants respectfully traverse this rejection, as hereinafter set forth.

Independent claim 1, as amended herein, recites an assay for determining a concentration of total endogenous lactoferrin. The assay of claim 1 comprises obtaining a human fecal sample and diluting said fecal sample. The diluted sample is contacted with immobilized polyclonal antibodies to endogenous lactoferrin to create a treated sample. The treated sample is contacted with enzyme-linked polyclonal antibodies to create a readable sample and the optical density of said readable sample is determined at 450 nm. A purified lactoferrin standard curve is generated and the linear portion of the standard curve is determined. The

optical density of said readable sample is compared to said standard curve to determine the concentration of the diluted sample. It is determined whether the concentration of the diluted sample is within the linear portion of the standard curve and, if so, the concentration of the total endogenous lactoferrin is determined. The lactoferrin concentration is compared to at least one previously determined lactoferrin concentration for the patient to determine whether treatment of the inflammatory bowel disease has been effective in decreasing or eliminating gastrointestinal inflammation.

By way of contrast, the Uchida reference discloses a method for diagnosing gastrointestinal tract disorders, particularly colorectal cancer, by measurement of the level of lactoferrin "in feces by immunoassay and by measurement of the level of whole-sized lactoferrin by immunoassay utilizing monoclonal antibody." *Uchida reference* at col. 1, lines 10–19. The Uchida reference does not provide a method for determining the concentration of a diluted sample and comparing the determined concentration of the diluted sample to at least one previously determined lactoferrin concentration for the patient to determine whether treatment of the inflammatory bowel disease has been effective in decreasing or eliminating gastrointestinal inflammation.

Likewise, the Boy Hoyer reference does not teach or suggest a method for determining the concentration of a diluted sample and comparing the determined concentration of the diluted sample to at least one previously determined lactoferrin concentration for the patient to determine whether treatment of the inflammatory bowel disease has been effective in decreasing or eliminating gastrointestinal inflammation. Rather, the Boy Hoeyer reference teaches a linear calibration curve for quantitative chemical analysis. The linear calibration curve is for inorganic chemicals and not related to biological markers.

In view of the above, it is respectfully submitted that the Uchida reference and the Boy Hoeyer reference fail to teach or suggest all of the limitations of amended independent claim 1 and, thus, a *prima facie* case of obviousness cannot be established for this claim based upon the Uchida reference. *See*, *In re Vaeck*, 947 F.2d 488, 20 USPQ 2d 1438 (Fed. Cir. 1991). As claim 2 depends from independent claim 1, it is respectfully submitted that a *prima facie* case of obviousness based upon the Uchida reference cannot be established for this claim for at least the same reasons as amended independent claim 1. *See*, *In re Fine*, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988) (a dependent claim is obvious only if the independent claim from which it depends is obvious); *see also*, MPEP § 2143.03. Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1 and 2 is respectfully requested.

Independent claim 3, as amended herein, recites a kit for distinguishing irritable bowel syndrome from inflammatory bowel disease by determining a concentration of total endogenous lactoferrin in a fecal sample from a person to be diagnosed. The kit of amended claim 3 comprises one or more microassay plates, each plate containing immobilized polyclonal antibodies to human lactoferrin, enzyme-linked polyclonal antibody to human lactoferrin, and enzyme substrate for color development. The kit includes instructions for performing serial dilutions of a fecal sample of a patient and for calculating concentration of lactoferrin in the fecal sample, where a concentration of the calculated lactoferrin equal to or greater than 7.25 μg/ml indicates gastrointestinal inflammation. Applicants submit that no new matter has been added by way of this amendment. See Specification paragraphs [0062] and [0016].

By way of contrast, the Uchida reference discloses a method for diagnosing gastrointestinal tract disorders, particularly colorectal cancer, by measurement of the level of lactoferrin "in feces by immunoassay and by measurement of the level of whole-sized lactoferrin

by immunoassay utilizing monoclonal antibody." *Uchida reference* at col. 1, lines 10–19. The Uchida reference does not teach nor disclose instructions for performing serial dilutions of a fecal sample of a patient and for calculating concentration of lactoferrin in the fecal sample, where a concentration of the calculated lactoferrin equal to or greater than 7.25 μg/ml indicates gastrointestinal inflammation.

Likewise, the Boy Hoyer reference does not teach or suggest instructions for performing serial dilutions of a fecal sample of a patient and for calculating concentration of lactoferrin in the fecal sample, where a concentration of the calculated lactoferrin equal to or greater than 7.25 μg/ml indicates gastrointestinal inflammation. Rather, the Boy Hoeyer reference teaches a linear calibration curve for quantitative chemical analysis. The linear calibration curve is for inorganic chemicals and not related to biological markers.

In view of the above, it is respectfully submitted that the Uchida reference, in view of the Boy Hoeyer reference, fails to teach or suggest all of the limitations of amended independent claim 3 and, thus, a *prima facie* case of obviousness cannot be established for this claim based upon the Uchida reference. *See, In re Vaeck*, 947 F.2d 488, 20 USPQ 2d 1438 (Fed. Cir. 1991). Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejection of claim 3 is respectfully requested.

C.) Obviousness Rejection Based on the Uchida reference in view of the Foster reference (U.S. Patent 4,444,879)

Claims 4 and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Uchida reference in view of the Boy Hoeyer reference and in further view of U.S. Patent 4,444,879 to Foster et al. (hereinafter the "Foster reference") .

It is respectfully submitted that the Uchida reference, in view the Boy Hoeyer reference, in further view of the Foster reference, fails to teach or suggest all of the limitations of amended independent claim 3. Thus, a *prima facie* case of obviousness cannot be established for this claim based upon the asserted combination of references. *See*, *In re Vaeck*, 947 F.2d 488, 20 USPQ 2d 1438 (Fed. Cir. 1991). Accordingly, a *prima facie* case of obviousness cannot be established for dependent claims 4 and 5 for at least the above-stated reasons. *See*, *In re Fine*, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988) (a dependent claim is obvious only if the independent claim from which it depends is obvious); *see also*, MPEP § 2143.03. Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejection of claims 4 and 5 is respectfully requested.

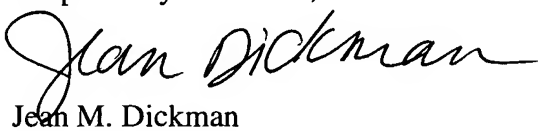
Each of claims 4 and 5 is believed to be in condition for allowance and such favorable action is respectfully requested.

CONCLUSION

Each of claims 1–6 is believed to be in condition for allowance, and a timely notice of allowance solicited. Should it be determined that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicants undersigned attorney.

It is believed that no fee is due in conjunction with the present Amendment. However, if this belief is in error, the Commissioner is hereby authorized to charge any amount required, or credit any overpayment, to Deposit Account No. 19-2112.

Respectfully submitted,



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